

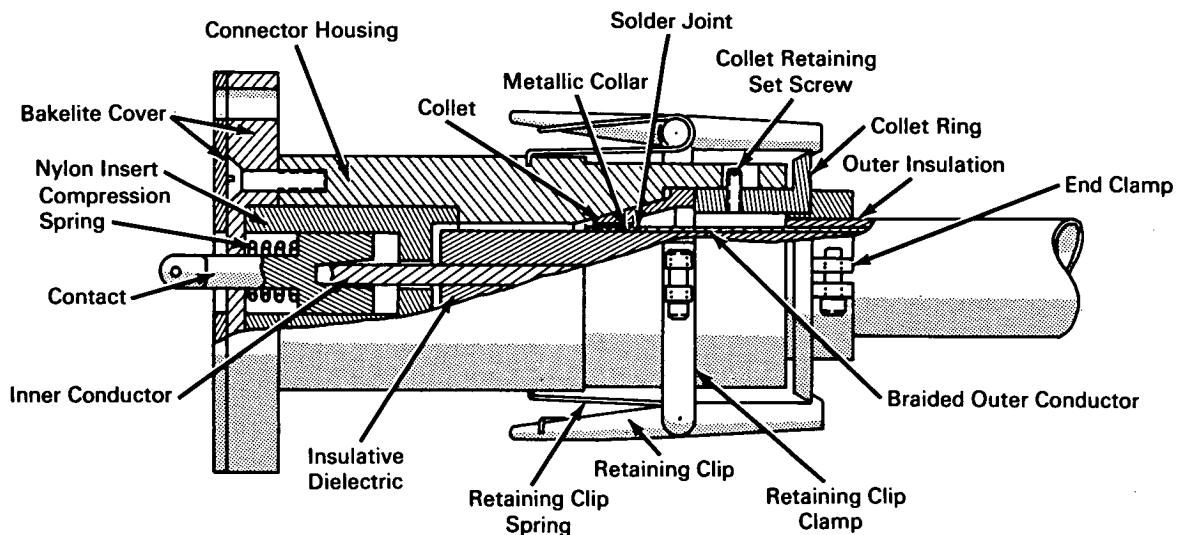


AEC-NASA TECH BRIEF



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Plug-In Connector Socket Accepts Coaxial Cable End



The problem:

To design a connector which can be used as a receptacle for the end of a coaxial cable. The connector should hold the coaxial cable in place while making an electrical connection between an external contact and the inner conductor. It should be possible to remove and reinsert the cable with ease.

The solution:

A connector which includes a spring-loaded contact to receive the protruding center conductor and an internal collet to clamp against a collar attached to a woven outer conductor.

How it's done:

The connector is constructed of a cylindrical connector housing with a bakelite cover fastened to one end. A spring-loaded contact, which extends through

a small hole in the bakelite, is mounted within a nylon insert near the bakelite covered end. Near the center of the housing is a collet with flexible fingers. The collet is held in place by a collet ring which fits inside the open end of the housing.

The end of the coaxial cable is cut and stripped so that each succeeding layer of material in the cable protrudes a specified distance out from the next outer layer. A metallic collar with an inside diameter just equal to the outside diameter of the insulative dielectric material of the cable is pushed over the dielectric until it butts against the braided outer conductor of the cable. The collar is then soldered securely to the outer conductor.

A clamp with two retaining clips is placed over one end of the housing. An end clamp is then placed over

(continued overleaf)

the coaxial cable. When the end of the coaxial cable is inserted into the connector, the inner conductor extends all the way into the spring-loaded contact and the collar lines up with the collet. The end clamp is then slid forward so that it butts against the collet ring. With this end clamp tightened securely to the cable, the cable end is pushed further into the connector, forcing the collet ring and collet inward, causing the collet to clamp against the collar. The compression spring allows the contact to move with the inner conductor.

The retaining clip clamp is moved so that the retaining clips will restrict any movement of the collet ring. The retaining clip clamp is then securely tightened, and small holes are drilled at the proper position to accept the retaining clip spring ends.

The coaxial cable is now held inside the connector. It can be removed simply by pressing the ends of the retaining clips free of the collet ring. The cable may be reinserted by pressing it into the connector until the retaining clips will fit over the collet ring flange.

Notes:

1. This plug-in connector socket has been used successfully with remote manipulators.
2. Inquiries concerning this innovation may be directed to:

Office of Industrial Cooperation
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, Illinois 60439
Reference: B66-10478

Patent status:

Inquiries about obtaining rights for commercial use of this innovation may be made to:

Mr. George H. Lee, Chief
Chicago Patent Group
U.S. Atomic Energy Commission
Chicago Operations Office
9800 S. Cass Avenue
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(ARG-9)